

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo  
10 Hazelwood Drive  
Amherst, NY 14228-2298  
Tel: (716)691-2600

CHECKED FOR COMPLETENESS  
OF PARAMETERS ORDERED BY:  
*[Handwritten signature]*

TestAmerica Job ID: 480-44462-1

Client Project/Site: Olin Chemical Surface water Quarterly  
Sampling Event: Surfacewater Quarterly (2, 5, 8, 11)  
Revision: 1

For:

Olin Corporation  
PO BOX 248  
Charleston, Tennessee 37310-0248

Attn: Mr. James Cashwell

*Becky Mason*

Authorized for release by:  
8/28/2013 10:24:16 AM

Becky Mason, Project Manager II  
[becky.mason@testamericainc.com](mailto:becky.mason@testamericainc.com)

6107130016-10

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

# Table of Contents

Cover Page .....	1
Table of Contents .....	2
Definitions/Glossary .....	3
Case Narrative .....	4
Detection Summary .....	6
Client Sample Results .....	9
QC Sample Results .....	13
QC Association Summary .....	18
Lab Chronicle .....	21
Certification Summary .....	24
Method Summary .....	25
Sample Summary .....	26
Receipt Checklists .....	27
Chain of Custody .....	28

## Definitions/Glossary

Client: Olin Corporation

TestAmerica Job ID: 480-44462-1

Project/Site: Olin Chemical Surface water Quarterly

### Qualifiers

#### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

#### General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Glossary

**Abbreviation** These commonly used abbreviations may or may not be present in this report.

□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

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## Case Narrative

Client: Olin Corporation  
Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

### Job ID: 480-44462-1

#### Laboratory: TestAmerica Buffalo

##### Narrative

Revised report: Per client request ID for sample 480-44462-5 changed to OC-PZ-17RRRSW. This final report replaces final report from 8/27/13.

##### Receipt

The samples were received on 8/23/2013 2:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 2.8° C.

##### HPLC

Method 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: (480-44462-1 MS), OC-ISCO1 (480-44462-1), OC-ISCO2 (480-44462-2), OC-ISCO3 (480-44462-3), OC-PZ-16RRSW (480-44462-4), OC-PZ-17RRRSW (480-44462-5), OC-PZ-18RSW (480-44462-6), OC-SD-17 (480-44462-7). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

##### Metals

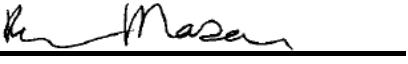
Method 6010: The Method Blank for batch 480-135598 contained total chromium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples OC-ISCO1 (480-44462-1), OC-ISCO2 (480-44462-2), OC-ISCO3 (480-44462-3), OC-PZ-16RRSW (480-44462-4), OC-PZ-17RRRSW (480-44462-5), OC-PZ-18RSW (480-44462-6), OC-SD-17 (480-44462-7) was not performed.

At the request of the client, an abbreviated/modified MCP compound list was reported for this job.

No other analytical or quality issues were noted.

##### General Chemistry

No analytical or quality issues were noted.

MassDEP Analytical Protocol Certification Form					
Laboratory Name:		TestAmerica Buffalo		Project #: 480-44462-1	
Project Location:		Wilmington		RTN:	
<b>This form provides certifications for the following data set: list Laboratory Sample ID Number(s):</b>					
<b>480-44462-1[1-7]</b>					
Matrices: <input checked="" type="checkbox"/> Groundwater/Surface Water <input type="checkbox"/> Soil/Sediment <input type="checkbox"/> Drinking Water <input type="checkbox"/> Air <input type="checkbox"/> Other:					
<b>CAM Protocols (check all that apply below):</b>					
8260 VOC CAM II A	7470/7471 Hg CAM III B	Mass DEP VPH CAM IV A	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	Mass DEP APH CAM IX A
8270 SVOC CAM II B	6010 Metals CAM III C	Mass DEP EPH CAM IV B	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	
<b>Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status</b>					
<b>A</b>	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding time.				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>B</b>	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>C</b>	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>D</b>	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>E</b>	a. VPH, EPH and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>F</b>	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Responses to Questions G, H and I below are required for "Presumptive Certainty" status</b>					
<b>G</b>	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
<i>Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WCS-07-350</i>					
<b>H</b>	Were <b>all</b> QC performance standards specified in the CAM protocol(s) achieved?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <sup>1</sup>
<b>I</b>	Were results reported for the complete analyte list specified in the selected CAM protocol(s) ?				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <sup>1</sup>
<sup>1</sup> All negative responses must be addressed in an attached laboratory narrative.					
<i>I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.</i>					
Signature: 		Position:		Project Manager	
Printed Name: Becky Mason		Date:		8/27/13 14:32	
This form has been electronically signed and approved					

# Detection Summary

Client: Olin Corporation

TestAmerica Job ID: 480-44462-1

Project/Site: Olin Chemical Surface water Quarterly

## Client Sample ID: OC-ISCO1

## Lab Sample ID: 480-44462-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	8.9	B	5.0	1.0	ug/L	1		6010	Total/NA
Aluminum	76	J	200	60	ug/L	1		6010	Total/NA
Sodium	110000		1000	320	ug/L	1		6010	Total/NA
Chromium	6.1		5.0	1.0	ug/L	1		6010	Dissolved
Sodium	100000		1000	320	ug/L	1		6010	Dissolved
Chloride	180		2.5	1.4	mg/L	5		300.0	Total/NA
Sulfate	130		10	1.7	mg/L	5		300.0	Total/NA
Ammonia	31		1.0	0.45	mg/L	50		350.1	Total/NA
Nitrate as N	0.40		0.050	0.020	mg/L	1		353.2	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	1000		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

## Client Sample ID: OC-ISCO2

## Lab Sample ID: 480-44462-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	340	B	5.0	1.0	ug/L	1		6010	Total/NA
Aluminum	1600		200	60	ug/L	1		6010	Total/NA
Sodium	160000		1000	320	ug/L	1		6010	Total/NA
Chromium	73		5.0	1.0	ug/L	1		6010	Dissolved
Aluminum	310		200	60	ug/L	1		6010	Dissolved
Sodium	160000		1000	320	ug/L	1		6010	Dissolved
Chloride	160		2.5	1.4	mg/L	5		300.0	Total/NA
Sulfate	360		10	1.7	mg/L	5		300.0	Total/NA
Ammonia	55		1.0	0.45	mg/L	50		350.1	Total/NA
Nitrate as N	1.5		0.050	0.020	mg/L	1		353.2	Total/NA
Nitrite as N	0.036	J	0.050	0.020	mg/L	1		353.2	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	1500		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

## Client Sample ID: OC-ISCO3

## Lab Sample ID: 480-44462-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sodium	96000		1000	320	ug/L	1		6010	Total/NA
Sodium	96000		1000	320	ug/L	1		6010	Dissolved
Chloride	210		2.5	1.4	mg/L	5		300.0	Total/NA
Sulfate	25		2.0	0.35	mg/L	1		300.0	Total/NA
Ammonia	0.19		0.020	0.0090	mg/L	1		350.1	Total/NA
Nitrate as N	1.0		0.050	0.020	mg/L	1		353.2	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	870		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

## Client Sample ID: OC-PZ-16RRSW

## Lab Sample ID: 480-44462-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	670	B	5.0	1.0	ug/L	1		6010	Total/NA
Aluminum	2300		200	60	ug/L	1		6010	Total/NA
Sodium	290000		1000	320	ug/L	1		6010	Total/NA
Chromium	380		5.0	1.0	ug/L	1		6010	Dissolved
Aluminum	1100		200	60	ug/L	1		6010	Dissolved
Sodium	280000		1000	320	ug/L	1		6010	Dissolved

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Detection Summary

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

## Client Sample ID: OC-PZ-16RRSW (Continued)

## Lab Sample ID: 480-44462-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	280		10	5.6	mg/L	20		300.0	Total/NA
Sulfate	1100		40	7.0	mg/L	20		300.0	Total/NA
Ammonia	160		2.0	0.90	mg/L	100		350.1	Total/NA
Nitrate as N	0.72		0.050	0.020	mg/L	1		353.2	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	3400		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

## Client Sample ID: OC-PZ-17RRRSW

## Lab Sample ID: 480-44462-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	2400	B	5.0	1.0	ug/L	1		6010	Total/NA
Aluminum	10000		200	60	ug/L	1		6010	Total/NA
Sodium	320000		1000	320	ug/L	1		6010	Total/NA
Chromium	1300		5.0	1.0	ug/L	1		6010	Dissolved
Aluminum	4100		200	60	ug/L	1		6010	Dissolved
Sodium	330000		1000	320	ug/L	1		6010	Dissolved
Chloride	310		10	5.6	mg/L	20		300.0	Total/NA
Sulfate	1300		40	7.0	mg/L	20		300.0	Total/NA
Ammonia	180		2.0	0.90	mg/L	100		350.1	Total/NA
Nitrate as N	0.42		0.050	0.020	mg/L	1		353.2	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	3700		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

## Client Sample ID: OC-PZ-18RSW

## Lab Sample ID: 480-44462-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	8.5	B	5.0	1.0	ug/L	1		6010	Total/NA
Sodium	100000		1000	320	ug/L	1		6010	Total/NA
Chromium	4.9	J	5.0	1.0	ug/L	1		6010	Dissolved
Sodium	100000		1000	320	ug/L	1		6010	Dissolved
Chloride	170		2.5	1.4	mg/L	5		300.0	Total/NA
Sulfate	130		10	1.7	mg/L	5		300.0	Total/NA
Ammonia	33		1.0	0.45	mg/L	50		350.1	Total/NA
Nitrate as N	0.37		0.050	0.020	mg/L	1		353.2	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	980		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

## Client Sample ID: OC-SD-17

## Lab Sample ID: 480-44462-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	5700	B	5.0	1.0	ug/L	1		6010	Total/NA
Aluminum	26000		200	60	ug/L	1		6010	Total/NA
Sodium	320000		1000	320	ug/L	1		6010	Total/NA
Chromium	5000		5.0	1.0	ug/L	1		6010	Dissolved
Aluminum	22000		200	60	ug/L	1		6010	Dissolved
Sodium	320000		1000	320	ug/L	1		6010	Dissolved
Chloride	320		10	5.6	mg/L	20		300.0	Total/NA
Sulfate	1300		40	7.0	mg/L	20		300.0	Total/NA
Ammonia	180		2.0	0.90	mg/L	100		350.1	Total/NA
Nitrate as N	0.41		0.050	0.020	mg/L	1		353.2	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

## Detection Summary

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

### Client Sample ID: OC-SD-17 (Continued)

### Lab Sample ID: 480-44462-7

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	3700		1.0	1.0	umhos/cm	1		SM 2510B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

# Client Sample Results

Client: Olin Corporation

TestAmerica Job ID: 480-44462-1

Project/Site: Olin Chemical Surface water Quarterly

**Client Sample ID: OC-ISCO1**

**Lab Sample ID: 480-44462-1**

Date Collected: 08/22/13 10:10

Matrix: Surface Water

Date Received: 08/23/13 02:00

**Method: 6010 - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	8.9	B	5.0	1.0	ug/L		08/23/13 11:10	08/23/13 18:29	1
Aluminum	76	J	200	60	ug/L		08/23/13 11:10	08/23/13 18:29	1
Sodium	110000		1000	320	ug/L		08/23/13 11:10	08/23/13 18:29	1

**Method: 6010 - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	6.1		5.0	1.0	ug/L		08/23/13 08:20	08/23/13 17:41	1
Aluminum	ND		200	60	ug/L		08/23/13 08:20	08/23/13 17:41	1
Sodium	100000		1000	320	ug/L		08/23/13 08:20	08/23/13 17:41	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	180		2.5	1.4	mg/L			08/26/13 19:07	5
Sulfate	130		10	1.7	mg/L			08/26/13 19:07	5
Ammonia	31		1.0	0.45	mg/L			08/23/13 17:30	50
Nitrate as N	0.40		0.050	0.020	mg/L			08/23/13 10:33	1
Nitrite as N	ND		0.050	0.020	mg/L			08/23/13 10:33	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	1000		1.0	1.0	umhos/cm			08/24/13 09:09	1

**Client Sample ID: OC-ISCO2**

**Lab Sample ID: 480-44462-2**

Date Collected: 08/22/13 08:55

Matrix: Surface Water

Date Received: 08/23/13 02:00

**Method: 6010 - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	340	B	5.0	1.0	ug/L		08/23/13 11:10	08/23/13 18:32	1
Aluminum	1600		200	60	ug/L		08/23/13 11:10	08/23/13 18:32	1
Sodium	160000		1000	320	ug/L		08/23/13 11:10	08/23/13 18:32	1

**Method: 6010 - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	73		5.0	1.0	ug/L		08/23/13 08:20	08/23/13 17:59	1
Aluminum	310		200	60	ug/L		08/23/13 08:20	08/23/13 17:59	1
Sodium	160000		1000	320	ug/L		08/23/13 08:20	08/23/13 17:59	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	160		2.5	1.4	mg/L			08/26/13 19:48	5
Sulfate	360		10	1.7	mg/L			08/26/13 19:48	5
Ammonia	55		1.0	0.45	mg/L			08/23/13 17:31	50
Nitrate as N	1.5		0.050	0.020	mg/L			08/23/13 10:34	1
Nitrite as N	0.036	J	0.050	0.020	mg/L			08/23/13 10:34	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	1500		1.0	1.0	umhos/cm			08/24/13 09:10	1

TestAmerica Buffalo

# Client Sample Results

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

## Client Sample ID: OC-ISCO3

Lab Sample ID: 480-44462-3

Date Collected: 08/22/13 08:45

Matrix: Surface Water

Date Received: 08/23/13 02:00

### Method: 6010 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		5.0	1.0	ug/L		08/23/13 11:10	08/23/13 18:45	1
Aluminum	ND		200	60	ug/L		08/23/13 11:10	08/23/13 18:45	1
Sodium	96000		1000	320	ug/L		08/23/13 11:10	08/23/13 18:45	1

### Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		5.0	1.0	ug/L		08/23/13 08:20	08/23/13 18:02	1
Aluminum	ND		200	60	ug/L		08/23/13 08:20	08/23/13 18:02	1
Sodium	96000		1000	320	ug/L		08/23/13 08:20	08/23/13 18:02	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	210		2.5	1.4	mg/L			08/26/13 19:58	5
Sulfate	25		2.0	0.35	mg/L			08/24/13 06:28	1
Ammonia	0.19		0.020	0.0090	mg/L			08/23/13 16:06	1
Nitrate as N	1.0		0.050	0.020	mg/L			08/23/13 10:35	1
Nitrite as N	ND		0.050	0.020	mg/L			08/23/13 10:35	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	870		1.0	1.0	umhos/cm			08/24/13 09:12	1

## Client Sample ID: OC-PZ-16RRSW

Lab Sample ID: 480-44462-4

Date Collected: 08/22/13 09:15

Matrix: Surface Water

Date Received: 08/23/13 02:00

### Method: 6010 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	670	B	5.0	1.0	ug/L		08/23/13 11:10	08/23/13 18:48	1
Aluminum	2300		200	60	ug/L		08/23/13 11:10	08/23/13 18:48	1
Sodium	290000		1000	320	ug/L		08/23/13 11:10	08/23/13 18:48	1

### Method: 6010 - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	380		5.0	1.0	ug/L		08/23/13 08:20	08/23/13 18:05	1
Aluminum	1100		200	60	ug/L		08/23/13 08:20	08/23/13 18:05	1
Sodium	280000		1000	320	ug/L		08/23/13 08:20	08/23/13 18:05	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	280		10	5.6	mg/L			08/26/13 20:08	20
Sulfate	1100		40	7.0	mg/L			08/26/13 20:08	20
Ammonia	160		2.0	0.90	mg/L			08/23/13 17:36	100
Nitrate as N	0.72		0.050	0.020	mg/L			08/23/13 10:37	1
Nitrite as N	ND		0.050	0.020	mg/L			08/23/13 10:37	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	3400		1.0	1.0	umhos/cm			08/24/13 09:13	1

TestAmerica Buffalo

# Client Sample Results

Client: Olin Corporation

TestAmerica Job ID: 480-44462-1

Project/Site: Olin Chemical Surface water Quarterly

**Client Sample ID: OC-PZ-17RRRSW**

**Lab Sample ID: 480-44462-5**

Date Collected: 08/22/13 09:30

Matrix: Surface Water

Date Received: 08/23/13 02:00

**Method: 6010 - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	2400	B	5.0	1.0	ug/L		08/23/13 11:10	08/23/13 18:50	1
Aluminum	10000		200	60	ug/L		08/23/13 11:10	08/23/13 18:50	1
Sodium	320000		1000	320	ug/L		08/23/13 11:10	08/23/13 18:50	1

**Method: 6010 - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	1300		5.0	1.0	ug/L		08/23/13 08:20	08/23/13 18:08	1
Aluminum	4100		200	60	ug/L		08/23/13 08:20	08/23/13 18:08	1
Sodium	330000		1000	320	ug/L		08/23/13 08:20	08/23/13 18:08	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	310		10	5.6	mg/L			08/26/13 20:18	20
Sulfate	1300		40	7.0	mg/L			08/26/13 20:18	20
Ammonia	180		2.0	0.90	mg/L			08/23/13 17:37	100
Nitrate as N	0.42		0.050	0.020	mg/L			08/23/13 10:38	1
Nitrite as N	ND		0.050	0.020	mg/L			08/23/13 10:38	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	3700		1.0	1.0	umhos/cm			08/24/13 09:15	1

**Client Sample ID: OC-PZ-18RSW**

**Lab Sample ID: 480-44462-6**

Date Collected: 08/22/13 10:00

Matrix: Surface Water

Date Received: 08/23/13 02:00

**Method: 6010 - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	8.5	B	5.0	1.0	ug/L		08/23/13 11:10	08/23/13 18:59	1
Aluminum	ND		200	60	ug/L		08/23/13 11:10	08/23/13 18:59	1
Sodium	100000		1000	320	ug/L		08/23/13 11:10	08/23/13 18:59	1

**Method: 6010 - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	4.9	J	5.0	1.0	ug/L		08/23/13 08:20	08/23/13 18:10	1
Aluminum	ND		200	60	ug/L		08/23/13 08:20	08/23/13 18:10	1
Sodium	100000		1000	320	ug/L		08/23/13 08:20	08/23/13 18:10	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	170		2.5	1.4	mg/L			08/26/13 20:28	5
Sulfate	130		10	1.7	mg/L			08/26/13 20:28	5
Ammonia	33		1.0	0.45	mg/L			08/23/13 17:38	50
Nitrate as N	0.37		0.050	0.020	mg/L			08/23/13 10:41	1
Nitrite as N	ND		0.050	0.020	mg/L			08/23/13 10:41	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	980		1.0	1.0	umhos/cm			08/24/13 09:16	1

TestAmerica Buffalo

# Client Sample Results

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

**Client Sample ID: OC-SD-17**

**Lab Sample ID: 480-44462-7**

Date Collected: 08/22/13 09:40

Matrix: Surface Water

Date Received: 08/23/13 02:00

**Method: 6010 - Metals (ICP)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	5700	B	5.0	1.0	ug/L		08/23/13 11:10	08/23/13 19:01	1
Aluminum	26000		200	60	ug/L		08/23/13 11:10	08/23/13 19:01	1
Sodium	320000		1000	320	ug/L		08/23/13 11:10	08/23/13 19:01	1

**Method: 6010 - Metals (ICP) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	5000		5.0	1.0	ug/L		08/23/13 08:20	08/23/13 18:13	1
Aluminum	22000		200	60	ug/L		08/23/13 08:20	08/23/13 18:13	1
Sodium	320000		1000	320	ug/L		08/23/13 08:20	08/23/13 18:13	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	320		10	5.6	mg/L			08/26/13 20:38	20
Sulfate	1300		40	7.0	mg/L			08/26/13 20:38	20
Ammonia	180		2.0	0.90	mg/L			08/23/13 17:39	100
Nitrate as N	0.41		0.050	0.020	mg/L			08/23/13 10:42	1
Nitrite as N	ND		0.050	0.020	mg/L			08/23/13 10:42	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	3700		1.0	1.0	umhos/cm			08/24/13 09:18	1

# QC Sample Results

Client: Olin Corporation

TestAmerica Job ID: 480-44462-1

Project/Site: Olin Chemical Surface water Quarterly

## Method: 6010 - Metals (ICP)

Lab Sample ID: MB 480-135598/1-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 135847

Prep Batch: 135598

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier									
Chromium	1.09	J			5.0	1.0	ug/L		08/23/13 11:10	08/23/13 18:16	1
Aluminum		ND			200	60	ug/L		08/23/13 11:10	08/23/13 18:16	1
Sodium		ND			1000	320	ug/L		08/23/13 11:10	08/23/13 18:16	1

Lab Sample ID: LCS 480-135598/2-A

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 135847

Prep Batch: 135598

Analyte	Spike Added	LCS	LCS	Result	Qualifier	Unit	D	%Rec	%Rec.	
		Result	Qualifier						Limits	
Chromium	200	203				ug/L		101	80 - 120	
Aluminum		10200				ug/L		102	80 - 120	
Sodium	10000	9670				ug/L		97	80 - 120	

Lab Sample ID: LCSD 480-135598/3-A

Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 135847

Prep Batch: 135598

Analyte	Spike Added	LCSD	LCSD	Result	Qualifier	Unit	D	%Rec	%Rec.		RPD
		Result	Qualifier						Limits	RPD	Limit
Chromium	200	204				ug/L		102	80 - 120	1	20
Aluminum		10300				ug/L		103	80 - 120	1	20
Sodium	10000	9830				ug/L		98	80 - 120	2	20

Lab Sample ID: 480-44462-2 MS

Client Sample ID: OC-ISCO2

Matrix: Surface Water

Prep Type: Total/NA

Analysis Batch: 135847

Prep Batch: 135598

Analyte	Sample	Sample	Spike	MS	MS	Result	Qualifier	Unit	D	%Rec.	
	Result	Qualifier	Added	Result	Qualifier					Limits	RPD
Chromium	340	B	200	551		ug/L			105	75 - 125	
Aluminum		1600	10000	11800		ug/L			102	75 - 125	
Sodium		160000	10000	168000	4	ug/L			122	75 - 125	

Lab Sample ID: 480-44462-2 MSD

Client Sample ID: OC-ISCO2

Matrix: Surface Water

Prep Type: Total/NA

Analysis Batch: 135847

Prep Batch: 135598

Analyte	Sample	Sample	Spike	MSD	MSD	Result	Qualifier	Unit	D	%Rec.	
	Result	Qualifier	Added	Result	Qualifier					Limits	RPD
Chromium	340	B	200	556		ug/L			107	75 - 125	1
Aluminum		1600	10000	11700		ug/L			101	75 - 125	1
Sodium		160000	10000	168000	4	ug/L			118	75 - 125	0

Lab Sample ID: MB 480-135130/29-B

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Dissolved

Analysis Batch: 135846

Prep Batch: 135534

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier									
Chromium		ND			5.0	1.0	ug/L		08/23/13 08:20	08/23/13 16:55	1
Aluminum		ND			200	60	ug/L		08/23/13 08:20	08/23/13 16:55	1
Sodium		ND			1000	320	ug/L		08/23/13 08:20	08/23/13 16:55	1

TestAmerica Buffalo

# QC Sample Results

Client: Olin Corporation

TestAmerica Job ID: 480-44462-1

Project/Site: Olin Chemical Surface water Quarterly

## Method: 6010 - Metals (ICP) (Continued)

**Lab Sample ID: LCS 480-135130/30-B**

**Matrix: Water**

**Analysis Batch: 135846**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits	%Rec.	RPD	Limit
		Result	Qualifier					102		
Chromium	200	205		ug/L				80 - 120		
Aluminum	10000	10100		ug/L				101	80 - 120	
Sodium	10000	9700		ug/L				97	80 - 120	

**Lab Sample ID: LCSD 480-135130/31-B**

**Matrix: Water**

**Analysis Batch: 135846**

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	Limits	%Rec.	RPD	Limit	
		Result	Qualifier					104			
Chromium	200	208		ug/L				80 - 120	2	20	
Aluminum	10000	10500		ug/L				105	80 - 120	4	20
Sodium	10000	9860		ug/L				99	80 - 120	2	20

**Lab Sample ID: 480-44462-1 MS**

**Matrix: Surface Water**

**Analysis Batch: 135846**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits	RPD
	Result	Qualifier	Added	Result	Qualifier					
Chromium	6.1		200	205		ug/L		100	75 - 125	
Aluminum	ND		10000	10200		ug/L		102	75 - 125	
Sodium	100000		10000	114000	4	ug/L		101	75 - 125	

**Lab Sample ID: 480-44462-1 MSD**

**Matrix: Surface Water**

**Analysis Batch: 135846**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	
	Result	Qualifier	Added	Result	Qualifier						
Chromium	6.1		200	207		ug/L		101	75 - 125	1	20
Aluminum	ND		10000	10200		ug/L		102	75 - 125	1	20
Sodium	100000		10000	113000	4	ug/L		91	75 - 125	1	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 480-135671/76**

**Matrix: Water**

**Analysis Batch: 135671**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	ND		0.50	0.28	mg/L			08/24/13 04:17	1
Sulfate	ND		2.0	0.35	mg/L			08/24/13 04:17	1

**Lab Sample ID: LCS 480-135671/75**

**Matrix: Water**

**Analysis Batch: 135671**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Chloride	20.0	20.3		ug/L		102	90 - 110
Sulfate	20.0	20.8		ug/L		104	90 - 110

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

TestAmerica Buffalo

# QC Sample Results

Client: Olin Corporation

TestAmerica Job ID: 480-44462-1

Project/Site: Olin Chemical Surface water Quarterly

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID:** MB 480-135910/28

**Client Sample ID:** Method Blank

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 135910

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	ND		0.50	0.28	mg/L			08/26/13 17:56	1
Sulfate	ND		2.0	0.35	mg/L			08/26/13 17:56	1

**Lab Sample ID:** LCS 480-135910/27

**Client Sample ID:** Lab Control Sample

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 135910

Analyte	MB	MB	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				
Chloride			20.0	20.5		mg/L		102	90 - 110
Sulfate			20.0	21.3		mg/L		106	90 - 110

**Lab Sample ID:** 480-44462-1 MS

**Client Sample ID:** OC-ISCO1

**Matrix:** Surface Water

**Prep Type:** Total/NA

**Analysis Batch:** 135910

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				
Chloride	180		125	296		mg/L		97	90 - 110
Sulfate	130		125	256		mg/L		98	90 - 110

## Method: 350.1 - Nitrogen, Ammonia

**Lab Sample ID:** MB 480-135721/147

**Client Sample ID:** Method Blank

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 135721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia	ND		0.020	0.0090	mg/L			08/23/13 15:59	1

**Lab Sample ID:** MB 480-135721/219

**Client Sample ID:** Method Blank

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 135721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia	ND		0.020	0.0090	mg/L			08/23/13 17:10	1

**Lab Sample ID:** MB 480-135721/243

**Client Sample ID:** Method Blank

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 135721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia	ND		0.020	0.0090	mg/L			08/23/13 17:34	1

**Lab Sample ID:** MB 480-135721/51

**Client Sample ID:** Method Blank

**Matrix:** Water

**Prep Type:** Total/NA

**Analysis Batch:** 135721

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia	ND		0.020	0.0090	mg/L			08/23/13 14:25	1

TestAmerica Buffalo

# QC Sample Results

Client: Olin Corporation

TestAmerica Job ID: 480-44462-1

Project/Site: Olin Chemical Surface water Quarterly

## Method: 350.1 - Nitrogen, Ammonia (Continued)

**Lab Sample ID: LCS 480-135721/148**

**Matrix: Water**

**Analysis Batch: 135721**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
Ammonia	1.00	1.01		mg/L		101	90 - 110

**Lab Sample ID: LCS 480-135721/220**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Analysis Batch: 135721**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
Ammonia	1.00	0.991		mg/L		99	90 - 110

**Lab Sample ID: LCS 480-135721/244**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Analysis Batch: 135721**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
Ammonia	1.00	1.00		mg/L		100	90 - 110

**Lab Sample ID: LCS 480-135721/52**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Analysis Batch: 135721**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
Ammonia	1.00	0.990		mg/L		99	90 - 110

**Lab Sample ID: 480-44462-A-3 MS**

**Client Sample ID: 480-44462-A-3 MS**

**Prep Type: Total/NA**

**Analysis Batch: 135721**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Ammonia	0.16		0.200	0.388		mg/L		113	54 - 150

**Lab Sample ID: 480-44462-A-3 DU**

**Client Sample ID: 480-44462-A-3 DU**

**Prep Type: Total/NA**

**Analysis Batch: 135721**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ammonia	0.16		0.167		mg/L		2	20

## Method: 353.2 - Nitrogen, Nitrite

**Lab Sample ID: MB 480-135615/3**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Matrix: Water**

**Analysis Batch: 135615**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	ND		0.050	0.020	mg/L			08/23/13 10:28	1

TestAmerica Buffalo

# QC Sample Results

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

## Method: 353.2 - Nitrogen, Nitrite (Continued)

Lab Sample ID: LCS 480-135615/4

Matrix: Water

Analysis Batch: 135615

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	Limits
Nitrite as N	1.50	1.50		mg/L		100	90 - 110	

# QC Association Summary

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

## Metals

### Filtration Batch: 135130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-135130/30-B	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 480-135130/31-B	Lab Control Sample Dup	Dissolved	Water	FILTRATION	
MB 480-135130/29-B	Method Blank	Dissolved	Water	FILTRATION	

### Prep Batch: 135534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-1	OC-ISCO1	Dissolved	Surface Water	3005A	
480-44462-1 MS	OC-ISCO1	Dissolved	Surface Water	3005A	
480-44462-1 MSD	OC-ISCO1	Dissolved	Surface Water	3005A	
480-44462-2	OC-ISCO2	Dissolved	Surface Water	3005A	
480-44462-3	OC-ISCO3	Dissolved	Surface Water	3005A	
480-44462-4	OC-PZ-16RRSW	Dissolved	Surface Water	3005A	
480-44462-5	OC-PZ-17RRRSW	Dissolved	Surface Water	3005A	
480-44462-6	OC-PZ-18RSW	Dissolved	Surface Water	3005A	
480-44462-7	OC-SD-17	Dissolved	Surface Water	3005A	
LCS 480-135130/30-B	Lab Control Sample	Dissolved	Water	3005A	135130
LCSD 480-135130/31-B	Lab Control Sample Dup	Dissolved	Water	3005A	135130
MB 480-135130/29-B	Method Blank	Dissolved	Water	3005A	135130

### Prep Batch: 135598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-1	OC-ISCO1	Total/NA	Surface Water	3005A	
480-44462-2	OC-ISCO2	Total/NA	Surface Water	3005A	
480-44462-2 MS	OC-ISCO2	Total/NA	Surface Water	3005A	
480-44462-2 MSD	OC-ISCO2	Total/NA	Surface Water	3005A	
480-44462-3	OC-ISCO3	Total/NA	Surface Water	3005A	
480-44462-4	OC-PZ-16RRSW	Total/NA	Surface Water	3005A	
480-44462-5	OC-PZ-17RRRSW	Total/NA	Surface Water	3005A	
480-44462-6	OC-PZ-18RSW	Total/NA	Surface Water	3005A	
480-44462-7	OC-SD-17	Total/NA	Surface Water	3005A	
LCS 480-135598/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 480-135598/3-A	Lab Control Sample Dup	Total/NA	Water	3005A	
MB 480-135598/1-A	Method Blank	Total/NA	Water	3005A	

### Analysis Batch: 135846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-1	OC-ISCO1	Dissolved	Surface Water	6010	135534
480-44462-1 MS	OC-ISCO1	Dissolved	Surface Water	6010	135534
480-44462-1 MSD	OC-ISCO1	Dissolved	Surface Water	6010	135534
480-44462-2	OC-ISCO2	Dissolved	Surface Water	6010	135534
480-44462-3	OC-ISCO3	Dissolved	Surface Water	6010	135534
480-44462-4	OC-PZ-16RRSW	Dissolved	Surface Water	6010	135534
480-44462-5	OC-PZ-17RRRSW	Dissolved	Surface Water	6010	135534
480-44462-6	OC-PZ-18RSW	Dissolved	Surface Water	6010	135534
480-44462-7	OC-SD-17	Dissolved	Surface Water	6010	135534
LCS 480-135130/30-B	Lab Control Sample	Dissolved	Water	6010	135534
LCSD 480-135130/31-B	Lab Control Sample Dup	Dissolved	Water	6010	135534
MB 480-135130/29-B	Method Blank	Dissolved	Water	6010	135534

TestAmerica Buffalo

# QC Association Summary

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

## Metals (Continued)

### Analysis Batch: 135847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-1	OC-ISCO1	Total/NA	Surface Water	6010	135598
480-44462-2	OC-ISCO2	Total/NA	Surface Water	6010	135598
480-44462-2 MS	OC-ISCO2	Total/NA	Surface Water	6010	135598
480-44462-2 MSD	OC-ISCO2	Total/NA	Surface Water	6010	135598
480-44462-3	OC-ISCO3	Total/NA	Surface Water	6010	135598
480-44462-4	OC-PZ-16RRSW	Total/NA	Surface Water	6010	135598
480-44462-5	OC-PZ-17RRRSW	Total/NA	Surface Water	6010	135598
480-44462-6	OC-PZ-18RSW	Total/NA	Surface Water	6010	135598
480-44462-7	OC-SD-17	Total/NA	Surface Water	6010	135598
LCS 480-135598/2-A	Lab Control Sample	Total/NA	Water	6010	135598
LCSD 480-135598/3-A	Lab Control Sample Dup	Total/NA	Water	6010	135598
MB 480-135598/1-A	Method Blank	Total/NA	Water	6010	135598

## General Chemistry

### Analysis Batch: 135615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-1	OC-ISCO1	Total/NA	Surface Water	353.2	13
480-44462-2	OC-ISCO2	Total/NA	Surface Water	353.2	14
480-44462-3	OC-ISCO3	Total/NA	Surface Water	353.2	
480-44462-4	OC-PZ-16RRSW	Total/NA	Surface Water	353.2	
480-44462-5	OC-PZ-17RRRSW	Total/NA	Surface Water	353.2	
480-44462-6	OC-PZ-18RSW	Total/NA	Surface Water	353.2	
480-44462-7	OC-SD-17	Total/NA	Surface Water	353.2	
LCS 480-135615/4	Lab Control Sample	Total/NA	Water	353.2	
MB 480-135615/3	Method Blank	Total/NA	Water	353.2	

### Analysis Batch: 135661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-1	OC-ISCO1	Total/NA	Surface Water	353.2	
480-44462-2	OC-ISCO2	Total/NA	Surface Water	353.2	
480-44462-3	OC-ISCO3	Total/NA	Surface Water	353.2	
480-44462-4	OC-PZ-16RRSW	Total/NA	Surface Water	353.2	
480-44462-5	OC-PZ-17RRRSW	Total/NA	Surface Water	353.2	
480-44462-6	OC-PZ-18RSW	Total/NA	Surface Water	353.2	
480-44462-7	OC-SD-17	Total/NA	Surface Water	353.2	

### Analysis Batch: 135671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-3	OC-ISCO3	Total/NA	Surface Water	300.0	
LCS 480-135671/75	Lab Control Sample	Total/NA	Water	300.0	
MB 480-135671/76	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 135721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-1	OC-ISCO1	Total/NA	Surface Water	350.1	
480-44462-2	OC-ISCO2	Total/NA	Surface Water	350.1	
480-44462-3	OC-ISCO3	Total/NA	Surface Water	350.1	
480-44462-4	OC-PZ-16RRSW	Total/NA	Surface Water	350.1	
480-44462-5	OC-PZ-17RRRSW	Total/NA	Surface Water	350.1	

TestAmerica Buffalo

# QC Association Summary

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

## General Chemistry (Continued)

### Analysis Batch: 135721 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-6	OC-PZ-18RSW	Total/NA	Surface Water	350.1	
480-44462-7	OC-SD-17	Total/NA	Surface Water	350.1	
480-44462-A-3 DU	480-44462-A-3 DU	Total/NA	Surface Water	350.1	
480-44462-A-3 MS	480-44462-A-3 MS	Total/NA	Surface Water	350.1	
LCS 480-135721/148	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-135721/220	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-135721/244	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-135721/52	Lab Control Sample	Total/NA	Water	350.1	
MB 480-135721/147	Method Blank	Total/NA	Water	350.1	
MB 480-135721/219	Method Blank	Total/NA	Water	350.1	
MB 480-135721/243	Method Blank	Total/NA	Water	350.1	
MB 480-135721/51	Method Blank	Total/NA	Water	350.1	

### Analysis Batch: 135760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-1	OC-ISCO1	Total/NA	Surface Water	SM 2510B	
480-44462-2	OC-ISCO2	Total/NA	Surface Water	SM 2510B	
480-44462-3	OC-ISCO3	Total/NA	Surface Water	SM 2510B	
480-44462-4	OC-PZ-16RRSW	Total/NA	Surface Water	SM 2510B	
480-44462-5	OC-PZ-17RRRSW	Total/NA	Surface Water	SM 2510B	
480-44462-6	OC-PZ-18RSW	Total/NA	Surface Water	SM 2510B	
480-44462-7	OC-SD-17	Total/NA	Surface Water	SM 2510B	
LCS 480-135760/1	Lab Control Sample	Total/NA	Water	SM 2510B	

### Analysis Batch: 135910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-44462-1	OC-ISCO1	Total/NA	Surface Water	300.0	
480-44462-1 MS	OC-ISCO1	Total/NA	Surface Water	300.0	
480-44462-2	OC-ISCO2	Total/NA	Surface Water	300.0	
480-44462-3	OC-ISCO3	Total/NA	Surface Water	300.0	
480-44462-4	OC-PZ-16RRSW	Total/NA	Surface Water	300.0	
480-44462-5	OC-PZ-17RRRSW	Total/NA	Surface Water	300.0	
480-44462-6	OC-PZ-18RSW	Total/NA	Surface Water	300.0	
480-44462-7	OC-SD-17	Total/NA	Surface Water	300.0	
LCS 480-135910/27	Lab Control Sample	Total/NA	Water	300.0	
MB 480-135910/28	Method Blank	Total/NA	Water	300.0	

## Lab Chronicle

Client: Olin Corporation  
 Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

### Client Sample ID: OC-ISCO1

Date Collected: 08/22/13 10:10

Date Received: 08/23/13 02:00

### Lab Sample ID: 480-44462-1

Matrix: Surface Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			135534	08/23/13 08:20	NMD2	TAL BUF
Dissolved	Analysis	6010		1	135846	08/23/13 17:41	LMH	TAL BUF
Total/NA	Prep	3005A			135598	08/23/13 11:10	NMD2	TAL BUF
Total/NA	Analysis	6010		1	135847	08/23/13 18:29	LMH	TAL BUF
Total/NA	Analysis	353.2		1	135615	08/23/13 10:33	RMB	TAL BUF
Total/NA	Analysis	353.2		1	135661	08/23/13 10:33	RMB	TAL BUF
Total/NA	Analysis	350.1		50	135721	08/23/13 17:30	KMF	TAL BUF
Total/NA	Analysis	SM 2510B		1	135760	08/24/13 09:09	EGN	TAL BUF
Total/NA	Analysis	300.0		5	135910	08/26/13 19:07	KRC	TAL BUF

### Client Sample ID: OC-ISCO2

Date Collected: 08/22/13 08:55

Date Received: 08/23/13 02:00

### Lab Sample ID: 480-44462-2

Matrix: Surface Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			135534	08/23/13 08:20	NMD2	TAL BUF
Dissolved	Analysis	6010		1	135846	08/23/13 17:59	LMH	TAL BUF
Total/NA	Prep	3005A			135598	08/23/13 11:10	NMD2	TAL BUF
Total/NA	Analysis	6010		1	135847	08/23/13 18:32	LMH	TAL BUF
Total/NA	Analysis	353.2		1	135615	08/23/13 10:34	RMB	TAL BUF
Total/NA	Analysis	353.2		1	135661	08/23/13 10:34	RMB	TAL BUF
Total/NA	Analysis	350.1		50	135721	08/23/13 17:31	KMF	TAL BUF
Total/NA	Analysis	SM 2510B		1	135760	08/24/13 09:10	EGN	TAL BUF
Total/NA	Analysis	300.0		5	135910	08/26/13 19:48	KRC	TAL BUF

### Client Sample ID: OC-ISCO3

Date Collected: 08/22/13 08:45

Date Received: 08/23/13 02:00

### Lab Sample ID: 480-44462-3

Matrix: Surface Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			135534	08/23/13 08:20	NMD2	TAL BUF
Dissolved	Analysis	6010		1	135846	08/23/13 18:02	LMH	TAL BUF
Total/NA	Prep	3005A			135598	08/23/13 11:10	NMD2	TAL BUF
Total/NA	Analysis	6010		1	135847	08/23/13 18:45	LMH	TAL BUF
Total/NA	Analysis	353.2		1	135615	08/23/13 10:35	RMB	TAL BUF
Total/NA	Analysis	353.2		1	135661	08/23/13 10:35	RMB	TAL BUF
Total/NA	Analysis	300.0		1	135671	08/24/13 06:28	KRC	TAL BUF
Total/NA	Analysis	350.1		1	135721	08/23/13 16:06	KMF	TAL BUF
Total/NA	Analysis	SM 2510B		1	135760	08/24/13 09:12	EGN	TAL BUF
Total/NA	Analysis	300.0		5	135910	08/26/13 19:58	KRC	TAL BUF

TestAmerica Buffalo

## Lab Chronicle

Client: Olin Corporation  
 Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

### Client Sample ID: OC-PZ-16RRSW

Date Collected: 08/22/13 09:15

Date Received: 08/23/13 02:00

### Lab Sample ID: 480-44462-4

Matrix: Surface Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			135534	08/23/13 08:20	NMD2	TAL BUF
Dissolved	Analysis	6010		1	135846	08/23/13 18:05	LMH	TAL BUF
Total/NA	Prep	3005A			135598	08/23/13 11:10	NMD2	TAL BUF
Total/NA	Analysis	6010		1	135847	08/23/13 18:48	LMH	TAL BUF
Total/NA	Analysis	353.2		1	135615	08/23/13 10:37	RMB	TAL BUF
Total/NA	Analysis	353.2		1	135661	08/23/13 10:37	RMB	TAL BUF
Total/NA	Analysis	350.1		100	135721	08/23/13 17:36	KMF	TAL BUF
Total/NA	Analysis	SM 2510B		1	135760	08/24/13 09:13	EGN	TAL BUF
Total/NA	Analysis	300.0		20	135910	08/26/13 20:08	KRC	TAL BUF

### Client Sample ID: OC-PZ-17RRRSW

Date Collected: 08/22/13 09:30

Date Received: 08/23/13 02:00

### Lab Sample ID: 480-44462-5

Matrix: Surface Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			135534	08/23/13 08:20	NMD2	TAL BUF
Dissolved	Analysis	6010		1	135846	08/23/13 18:08	LMH	TAL BUF
Total/NA	Prep	3005A			135598	08/23/13 11:10	NMD2	TAL BUF
Total/NA	Analysis	6010		1	135847	08/23/13 18:50	LMH	TAL BUF
Total/NA	Analysis	353.2		1	135615	08/23/13 10:38	RMB	TAL BUF
Total/NA	Analysis	353.2		1	135661	08/23/13 10:38	RMB	TAL BUF
Total/NA	Analysis	350.1		100	135721	08/23/13 17:37	KMF	TAL BUF
Total/NA	Analysis	SM 2510B		1	135760	08/24/13 09:15	EGN	TAL BUF
Total/NA	Analysis	300.0		20	135910	08/26/13 20:18	KRC	TAL BUF

### Client Sample ID: OC-PZ-18RSW

Date Collected: 08/22/13 10:00

Date Received: 08/23/13 02:00

### Lab Sample ID: 480-44462-6

Matrix: Surface Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			135534	08/23/13 08:20	NMD2	TAL BUF
Dissolved	Analysis	6010		1	135846	08/23/13 18:10	LMH	TAL BUF
Total/NA	Prep	3005A			135598	08/23/13 11:10	NMD2	TAL BUF
Total/NA	Analysis	6010		1	135847	08/23/13 18:59	LMH	TAL BUF
Total/NA	Analysis	353.2		1	135615	08/23/13 10:41	RMB	TAL BUF
Total/NA	Analysis	353.2		1	135661	08/23/13 10:41	RMB	TAL BUF
Total/NA	Analysis	350.1		50	135721	08/23/13 17:38	KMF	TAL BUF
Total/NA	Analysis	SM 2510B		1	135760	08/24/13 09:16	EGN	TAL BUF
Total/NA	Analysis	300.0		5	135910	08/26/13 20:28	KRC	TAL BUF

TestAmerica Buffalo

## Lab Chronicle

Client: Olin Corporation  
Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

**Client Sample ID: OC-SD-17**

**Lab Sample ID: 480-44462-7**

**Date Collected: 08/22/13 09:40**

**Matrix: Surface Water**

**Date Received: 08/23/13 02:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			135534	08/23/13 08:20	NMD2	TAL BUF
Dissolved	Analysis	6010		1	135846	08/23/13 18:13	LMH	TAL BUF
Total/NA	Prep	3005A			135598	08/23/13 11:10	NMD2	TAL BUF
Total/NA	Analysis	6010		1	135847	08/23/13 19:01	LMH	TAL BUF
Total/NA	Analysis	353.2		1	135615	08/23/13 10:42	RMB	TAL BUF
Total/NA	Analysis	353.2		1	135661	08/23/13 10:42	RMB	TAL BUF
Total/NA	Analysis	350.1		100	135721	08/23/13 17:39	KMF	TAL BUF
Total/NA	Analysis	SM 2510B		1	135760	08/24/13 09:18	EGN	TAL BUF
Total/NA	Analysis	300.0		20	135910	08/26/13 20:38	KRC	TAL BUF

**Laboratory References:**

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

## Certification Summary

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

### Laboratory: TestAmerica Buffalo

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-13 *
California	NELAP	9	1169CA	09-30-13
Connecticut	State Program	1	PH-0568	09-30-14
Florida	NELAP	4	E87672	06-30-14
Georgia	State Program	4	N/A	03-31-14
Georgia	State Program	4	956	03-31-14
Illinois	NELAP	5	200003	09-30-13
Iowa	State Program	7	374	03-15-15
Kansas	NELAP	7	E-10187	01-31-14
Kentucky	State Program	4	90029	12-31-13
Kentucky (UST)	State Program	4	30	04-01-14
Louisiana	NELAP	6	02031	06-30-14
Maine	State Program	1	NY00044	12-04-14
Maryland	State Program	3	294	03-31-14
Massachusetts	State Program	1	M-NY044	06-30-14
Michigan	State Program	5	9937	04-01-14
Minnesota	NELAP	5	036-999-337	12-31-13
New Hampshire	NELAP	1	2973	09-11-13
New Hampshire	NELAP	1	2337	11-17-13
New Jersey	NELAP	2	NY455	06-30-14
New York	NELAP	2	10026	04-01-14
North Dakota	State Program	8	R-176	03-31-14
Oklahoma	State Program	6	9421	08-31-14
Oregon	NELAP	10	NY200003	06-09-14
Pennsylvania	NELAP	3	68-00281	07-31-14
Rhode Island	State Program	1	LAO00328	12-31-13
Tennessee	State Program	4	TN02970	04-01-14
Texas	NELAP	6	T104704412-11-2	07-31-14
USDA	Federal		P330-11-00386	11-22-14
Virginia	NELAP	3	460185	09-14-13
Washington	State Program	10	C784	02-10-14
West Virginia DEP	State Program	3	252	09-30-13
Wisconsin	State Program	5	998310390	08-31-13 *

\* Expired certification is currently pending renewal and is considered valid.

TestAmerica Buffalo

## Method Summary

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

Method	Method Description	Protocol	Laboratory
6010	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
SM 2510B	Conductivity, Specific Conductance	SM	TAL BUF

### Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

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## Sample Summary

Client: Olin Corporation

Project/Site: Olin Chemical Surface water Quarterly

TestAmerica Job ID: 480-44462-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-44462-1	OC-ISCO1	Surface Water	08/22/13 10:10	08/23/13 02:00
480-44462-2	OC-ISCO2	Surface Water	08/22/13 08:55	08/23/13 02:00
480-44462-3	OC-ISCO3	Surface Water	08/22/13 08:45	08/23/13 02:00
480-44462-4	OC-PZ-16RRSW	Surface Water	08/22/13 09:15	08/23/13 02:00
480-44462-5	OC-PZ-17RRRSW	Surface Water	08/22/13 09:30	08/23/13 02:00
480-44462-6	OC-PZ-18RSW	Surface Water	08/22/13 10:00	08/23/13 02:00
480-44462-7	OC-SD-17	Surface Water	08/22/13 09:40	08/23/13 02:00

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## Login Sample Receipt Checklist

Client: Olin Corporation

Job Number: 480-44462-1

**Login Number: 44462**

**List Source: TestAmerica Buffalo**

**List Number: 1**

**Creator: Wienke, Robert K**

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

## Chain of Custody Record

TestAmerica

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